of the inner nasal bones, the eyes appear not to have been disturbed, the tongue was entire, and the teeth white and perfect.

Dr. Granville next proceeds to draw some conclusions as to the age at which this mummied female died, and respecting the disease which destroyed her. The bones of the ileum exhibit that peculiar thinness of their osseous plates which show the individual to have exceeded her fortieth year, and to have borne children; and as there are no characters of age or decrepitude about the skeleton, the author considers her to have been about fifty. The ovarium and broad ligament of the right side were enveloped in a mass of diseased structure, while the Fallopian tube of the same side was sound; but the uterus itself was larger than natural, and the remains of a sac were found connected with the left ovarium; all which, connected with the appearance of the abdominal integuments, leave no doubt of ovarian dropsy having been the disease under which the individual suffered.

The author concludes this communication with some observations respecting the method of embalming generally, and the nature of the substances employed in the process, from the details of which he draws the following conclusions:—

The abdominal viscera were more or less perfectly extracted, either through an incision on one side of the abdomen, or, as in the present mummy, through the anus. The thoracic cavity was not disturbed. The contents of the cranium were removed sometimes through the nostrils, and in others through one of the orbits. The body was then probably covered with quick-lime, to facilitate the removal of the cuticle, the scalp and nails being, however, left untouched; after which, it was immersed in a melted mixture of wax, resin, and bitumen, until thoroughly penetrated; and ultimately subjected to a tanning liquor, probably made with the saline water of the neighbouring natron lakes. The bandages were applied with the occasional interposition of melted resin, or wax and resin, the lumps of resin, myrrh, &c., having been previously placed in the abdomen.

On the temporary Magnetic Effect induced in Iron Bodies by Rotation. In a Letter to J. F. W. Herschel, *Esq. Sec. R.S. by* Peter Barlow, *F.R.S. Communicated April 14th*, 1825. Read May 5, 1825. [*Phil. Trans.* 1825, *p.* 317.]

The author's attention having been recalled to the consideration of the effects of rotation in altering the magnetic influence of iron, in the course of speculations on the cause of the rotation of the earth's magnetic poles; and knowing, at the same time, that Mr. Christie had found a permanent change in the magnetic state of an iron plate, by mere change of position on its axis, it seemed to him highly probable that this change, due only to a simple inversion, would be increased by rapid rotation. On trial, however, it was found that the effect produced was merely temporary. The experiments at first were made with a 13-inch mortar shell, fixed to the mandrel of a

powerful turning lathe, worked by a steam-engine in the Royal Arsenal at Woolwich. This being made to revolve at the rate of 640 turns per minute, the needle was deflected out several degrees, and there remained stationary during the motion of the ball, but returned immediately to its original position on ceasing the rotation. On inverting the motion of the shell, an equal and contrary deflection took place.

As the law of the phenomena was not evident with this disposition of the apparatus, and the shell was found too heavy for perfect safety, a Shrapnel shell of eight inches diameter was mounted in a proper apparatus (described in the paper), and a number of experiments made; the law of which, however, still seemed anomalous, till the idea occurred of neutralizing the earth's action on the needle, when the anomalies disappeared, and the general law of the effect was placed in evidence. The needle being made a tangent to the ball, if the motion of the ball was made towards the needle (whatever was the direction of the axis of rotation), the north end of the latter was attracted, and if the contrary way, repelled. In the two extremities of the axis there was found no effect, while in two opposite points, at right angles to the axis, the effect was a maximum, and the direction of the needle was to the centre of the ball.

The author then proceeds to show how all the results, which before appeared anomalous, agree with this general view, and closes his communication with some theoretical views of their general bearing on the subject of the earth's magnetism, which he thinks there are strong reasons for believing to be of the *induced* kind; and although it appears to him doubtful whether the anomalies observed in the variation of the needle on the earth's surface, can ultimately be referred to this cause, yet, he observes, that one condition essential to the production of these phenomena holds good in the case of the earth, viz. the non-coincidence of its polarized axis with that of its diurnal rotation.

Further Researches on the Preservation of Metals by Electro-chemical Means. By Sir Humphry Davy, *Bart. P.R.S.* Read June 9, 1825. [*Phil. Trans.* 1825, *p.* 328.]

After adverting to the general details respecting the protection of the copper sheathing of ships, contained in his former papers, the President proceeds, in the present communication, to consider the circumstances under which various substances are deposited upon the protecting copper, and their general influence upon its wear, more especially in regard to ships in motion. For this purpose, he availed himself of the use of a steam boat, employed on an expedition to ascertain some points of longitude in the North Seas, and his inquiries lead to the inference that motion does not affect the nature of the limits and quantity of the protecting metal; and that, independently of the chemical, there is likewise a mechanical wear of the copper in sailing.